

CLAIMS:

1. A method of matching the response of a hydrophone and the response of an accelerometer, the method comprising the steps of:
performing a calculus operation upon the response of at least one of the hydrophone and the accelerometer; and
deriving a filter from the output of the calculus operation and the response of the other of the hydrophone and the accelerometer.
2. A method as claimed in claim 1 wherein the step of deriving the filter comprises dividing the result of the calculus operation by the response of the other of the hydrophone and the accelerometer.
3. A method as claimed in claim 1 wherein the step of deriving the filter comprises deriving the filter using a numerical technique.
4. A method as claimed in claim 1, 2 or 3 wherein the step of performing the calculus operation comprises the step of integrating the response of the accelerometer with respect to time.
5. A method as claimed in claim 1, 2 or 3 wherein the step of performing the calculus operation comprises the step of differentiating the response of the hydrophone with respect to time.
6. A method of processing seismic data comprising the steps of:
obtaining a filter for matching the response of an accelerometer and the response of a hydrophone according to a method defined in any of claims 1 to 5;
obtaining first seismic data using the one of the hydrophone and the accelerometer and obtaining second seismic data using the other of the hydrophone and the accelerometer; and
using the matching filter to match the first seismic data and the second seismic data.

7. A method of processing seismic data comprising the steps of:
obtaining a filter for matching the response of an accelerometer and the response of a hydrophone according to a method defined in any of claims 1 to 5;
synthesising first seismic data for the one of the hydrophone and the accelerometer and synthesising second seismic data for the other of the hydrophone and the accelerometer; and
using the matching filter to match the first seismic data to the second seismic data.
8. A method as claimed in claim 6 or 7 and further comprising the step of applying the calculus operation to the first seismic data; and wherein the step of using the matching filter to match the first seismic data to the second seismic data comprises applying the matching filter to the first seismic data after the calculus operation has been applied to the first seismic data.
9. A method as claimed in claim 6, 7 or 8 and further comprising the step of: combining the matched first seismic data and the second seismic data.
10. A method as claimed in claim 9 and comprising the further step of applying one or more data processing steps to the combined seismic data.
11. An apparatus for matching the response of a hydrophone and the response of an accelerometer, the apparatus comprising:
means for performing a calculus operation upon the response of at least one of the hydrophone and the accelerometer; and
means for deriving a filter from the output of the calculus operation and the response of the other of the hydrophone and the accelerometer.
12. An apparatus for processing seismic data and comprising:

means for receiving first seismic data acquired using the one of a hydrophone and an accelerometer and second seismic data acquired using the other of the hydrophone and the accelerometer; and

means for matching the first seismic data and the second seismic data using a matching filter obtained by a method as defined in any of claims 1 to 5.

13. An apparatus as claimed in claim 12 and further comprising:
 - means for applying the calculus operation to the first seismic data ; and
 - means for subsequently applying the matching filter to the first seismic data.
14. An apparatus as claimed in claim 12 or 13 and further comprising means for combining the first seismic data and the second seismic data.
15. An apparatus as claimed in claim 12, 13 or 14 and comprising a programmable data processor.
16. A storage medium comprising a program for a data processor of an apparatus as defined in claim 15.
17. A computer programmed to perform a method as defined in any of claims 1 to 10.
18. A program for controlling a computer to perform a method as defined in any of claims 1 to 10.
19. A storage medium containing a program as defined in claim 18.